CLAIMS

1. A bandpass filter for an optical data signal, comprising a transmission curve (T) having a passband at a mid-frequency (F0) for a bandwidth (Δf), wherein the transmission curve (T) has an attenuation range which covers the mid-frequency (F0).

2. A bandpass filter as claimed in claim 1, wherein the attenuation range is narrowband in a region of the mid-frequency (F0).

3. A bandpass filter as claimed in claim 1, wherein the attenuation range is one of U-shaped and V-shaped.

4. A bandpass filter as claimed in claim 2, wherein the attenuation range contains a combination of (a) one of a U-shaped profile and a V-shaped profile away from the mid-frequency (F0), and (b) a narrowband profile at the mid-frequency (F0).

5. A bandpass filter as claimed in claim 1, wherein the transmission curve (T) having the mid-frequency (F0) is represented by a normalized transfer function H(f) as follows:

$$H(f) = c_1 * e^{-c_2*(f-F0)^2} + \sum_{k=1}^{t} c_3 * e^{-\left(c_4*\left(f-F0+(-1)^k*c_5\right)\right)^2} + c_6 * \delta(f - F0),$$

where (c1, c2, ..., c6) are setting coefficients and $\delta(f)$ denotes a function where $\delta(f=F0)=1$ and $\delta(f \neq F0)=0$.

6. A bandpass filter as claimed in claim 1, wherein the bandpass filter is a high-order IIR filter having a constant phase profile over the bandwidth (Δf).

7. A bandpass filter as claimed in claim 1, wherein the optical data signal is provided as a channel in a WDM signal.

8. A filter arrangement for optical data signals, comprising a plurality of bandpass filters for a plurality of optical data signals, wherein each bandpass filter comprises a transmission curve (T) having a passband at a mid-frequency (F0) for a bandwidth (Δf), with the transmission curve (T) having an attenuation range which covers the mid-frequency (F0), and wherein the passbands of the plurality of bandpass filters are arranged next to one another spectrally.

9. A filter arrangement for optical data signals as claimed in claim 8, wherein a frequency band lying between two passbands serves as a reflector for channel signals occurring therein.

10. A method for increasing a sensitivity of reception of an optical data signal at an optical carrier frequency, the method comprising the steps of:

providing a bandpass filter for the optical data signal, wherein the bandpass filter has a transmission curve (T) having a passband at a mid-frequency (F0) for a bandwidth (Δf), with the transmission curve (T) having an attenuation range which covers the mid-frequency (F0), and with the mid-frequency being at the carrier frequency; and

providing that at least the optical data signal upstream of optical reception pass through the bandpass filter.